

Appl. No. 09/706,937

Amdt. dated June 7, 2007

Reply to office action of February 8, 2007

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claim 1 (currently amended): An computer-implemented method of forming an index for a geographic database containing data that represent geographic features, said index method comprising:

creating a single indexing structure that includes three dimensions,

forming wherein a first dimension of said three dimensions to includes latitude boundary information,

forming a second dimension of said three dimensions to includes longitude boundary information, said data that represent geographic features indexed by said structure are searchable spatially using a latitude, a longitude and said first and second dimensions of said indexing structure,

forming wherein a third dimension of said three dimensions to includes rank information, wherein each of said geographic features have an associated rank information, wherein said rank information has at least two levels, a first level of rank is associated with the most important geographic features and a second level of rank is associated with geographic features of lesser importance, said data that represent geographic features indexed by said structure are searchable for said rank of the geographic features using said third dimension of said indexing structure,

storing wherein said index being stored on a computer readable medium.

Claim 2 (currently amended): An computer-implemented index stored on a computer readable medium for a geographic database containing geographic data that represent geographic features, said index comprising:

a single index structure that includes two spatial dimensions and a non-spatial third dimension,

wherein said structure is a k-d-tree index structure comprising a root node, intermediate nodes and leaf nodes,

whereby said geographic data indexed by said structure are searchable spatially using computer-executable instructions and said two spatial dimensions of said index structure and a latitude and a longitude,

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~~whereby~~ said geographic data indexed by said structure are searchable for a non-spatial property of the indexed geographic data that represent the geographic features using computer-executable instructions and said third dimension of said index structure, wherein said non-spatial property of the geographic data includes at least one of: a rank associated with the geographic features represented by the geographic data, a granularity of said indexed geographic data, and a scale associated with said indexed geographic data;

~~wherein said index being stored on a computer-readable medium.~~

Claim 3 (currently amended): The method ~~invention~~ of Claim 1 wherein said structure is a *k*-d-tree index structure comprising a root node, intermediate nodes and leaf nodes, wherein each node is part of a parent-child relationship wherein each parent node includes control information from which one of at least two child nodes associated with the parent node are distinguishable based on a search key.

Claim 4 (previously presented): The invention of Claim 1 or 2 wherein said index is homogeneous.

Claim 5 (previously presented): The invention of Claim 1 or 2 wherein said index is non-homogeneous.

Claim 6 (original): The invention of Claim 1 or 2 wherein said geographic features are roads.

Claim 7 (canceled).

Claim 8 (previously presented): The invention of Claim 1 or 2 wherein said rank includes both integers and fractional values.

Claim 9 (previously presented): The invention of Claim 14 wherein said selectivity is a granularity of the indexed data.

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Claim 10 (previously presented): The invention of Claim 14 wherein said selectivity is a viewing altitude associated with the indexed data.

Claim 11 (previously presented): The invention of Claim 14 wherein said selectivity is a scale associated with the indexed data.

Claim 12 (previously presented): The invention of Claim 14 wherein said selectivity is an expiration date associated with the indexed data.

Claim 13 (previously presented): The invention of Claim 14 wherein said selectivity is a creation date associated with the indexed data.

Claim 14 (currently amended): ~~A~~ computer-implemented index stored on a computer readable medium for data comprising:

a single indexing structure that includes a first dimension, a second dimension and a third dimension,

wherein said first dimension includes latitude boundary information,

wherein said second dimension includes longitude boundary information, ~~whereby~~ said data indexed by said structure are searchable using computer-executable instructions and a latitude, a longitude and said first and second dimension of said indexing structure,

wherein said third dimension includes a selectivity of said indexed data, ~~whereby~~ said data indexed by said indexing structure is searchable for said selectivity using computer-executable instructions and said third dimension of said indexing structure,

~~wherein said index being stored on a computer readable medium.~~

Claim 15 (currently amended): The method index of Claim 1 wherein said data that represent geographic features are organized into layers based on said rank associated with the represented features.